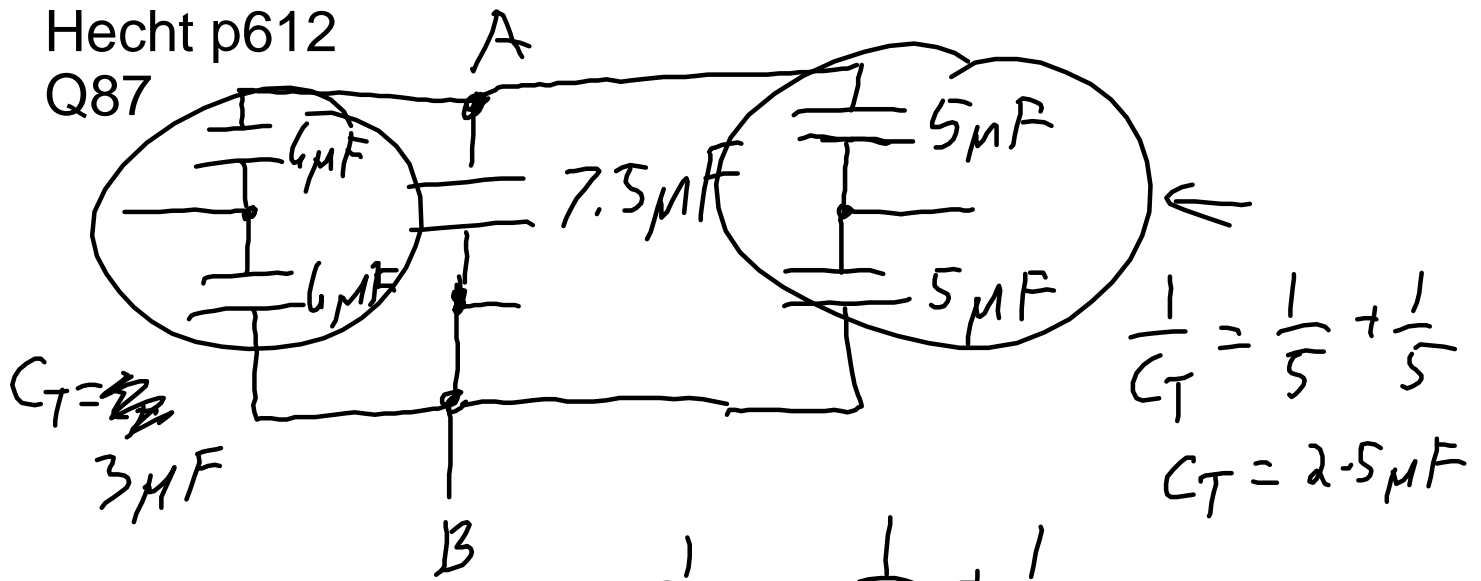


Hecht p612

Q87

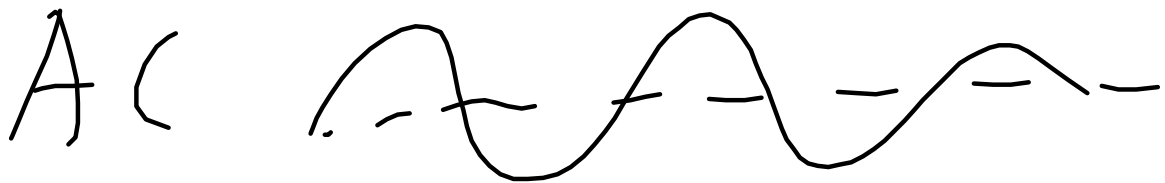


Series $R_T = R_1 + R_2$ $\frac{1}{C_T} = \frac{1}{C_1} + \frac{1}{C_2}$

Parallel $\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2}$ $C_T = C_1 + C_2$

$C_{\text{total}} = 13 \mu F$ ✓

$\tau = RC$ Time constant





$$q = q_0 e^{-\frac{t}{\tau}}$$

Since $I = \frac{q}{t}$ $I = I_0 e^{-\frac{t}{\tau}}$

$I_0 = \frac{q_0}{\tau}$ Not on data bank

$$C = \frac{q}{V} \quad V = V_0 e^{-\frac{t}{\tau}}$$

Magnetism

What do you know about magnetism?

Caused by current/moving charge or quantum spins lined up.

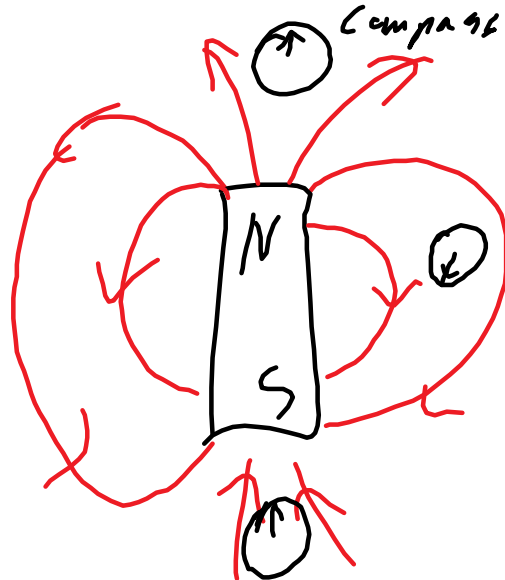
Creates a magnetic field, B.

The direction of the field corresponds to the direction a compass needle would point at that point.

North and South poles, opposite poles attract,

like poles repel. Field lines go from North to South.

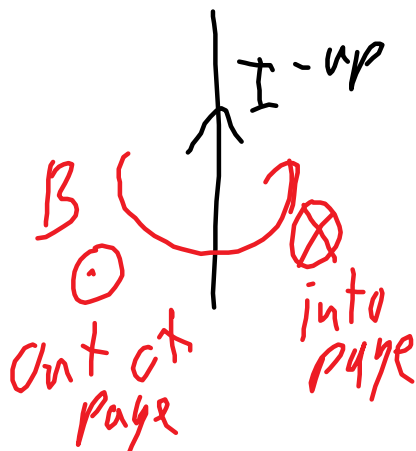
Bar magnet



horse shoe Magnet



current creates a magnetic field around a wire



current out of the page

Not in curriculum



$$B = \frac{\mu_0 I}{2\pi r}$$

$\mu_0 = \text{Permeability}$
 $= 4\pi \times 10^{-7} \text{ Tm A}^{-1}$

First RHR - Right Hand Rule

I - current in a wire





magnetic field around the wire

the magnetic field at a point is tangent to the circular magnetic field